Antenna, Microwave, and Optical Systems Branch (RCA)

Develops antenna, microwave and optical systems, subsystems, components and techniques for advanced communication systems. The work encompasses antennas and related technologies for space, aeronautical and terrestrial terminals. Emphasis is on the development and characterization of monolithic microwave integrated circuit (MMIC)-based arrays and array feeds, large-aperture inflatable antennas, miniaturized antennas and trade-off studies among different antenna technologies for space applications. Potential lower cost space-fed active array and reflectarray approaches are of interest, as well as other MMIC and non-MMIC based approaches (e.g., Micro-Electro Mechanical System (MEMS)-, ferroelectric-, and optical-based approaches). Research efforts also include Radio Frequency (RF) and optical propagation phenomena through atmosphere and turbulent media, development and validation of communication systems for aviation safety and aviation capacity, and other related electromagnetic phenomena. Develops, maintains, and operates state-of-the-art antenna metrology facilities for measurement and characterization of diverse antenna systems.